for the dormitories, thus saving present expense for schoolrooms, which are placed in the lower story.

At the time of the last report to the association, April 30 of the present year, the school was in operation with eighteen pupils, with a prospect of having the full quota of fifty as soon as its equipment is complete.

Mr. Bond reports the Crow children at the school as docile, affectionate, intelligent, and happy under their new surroundings. They are quick to learn, and interested in their studies and in their occupations. They are to be taught, under the contract with the Indian Bureau, the various industries which will fit them for the duties of civilized life. One of three boys who had run away, and who, as the ringleader, was refused permission to return, offered to submit to punishment if only allowed to come back.

An interesting feature of the work at this school is, that, of the six teachers and officers in charge, three are Indians who have been students at Carlisle and Hampton.

It is intended to add a kitchen, blacksmith-shop, carpenter-shop, and slaughter-house. The slaughter-house is a necessary adjunct of an Indian school, in order that the Indian boys may be taught how to kill animals for food mercifully, and also how to cut them up scientifically instead of hewing and hacking them as they now do.

The curriculum is not yet completely systematized, but probably half the time will be given to industries, and half to the schoolroom exercises. The industrial training will include blacksmithing, carpentry, farming, and butchering for the boys, and house-work, sewing, and cooking for the girls. The outlook for the school seems excellent, and, if the hands of the teachers are upheld by sufficient funds, an excellent work will be accomplished.

THE NEW JERSEY TEACHERS' READING-CIRCLE.

THE results of the first year's work of the New Jersey teachers in the reading-circles call for the highest commendation, and indicate a thorough organization and faithfulness on the part of the members.

The plan of organization, and methods of work, should be known in every State: in fact, the Board of Control in New Jersey is glad to inform other reading-circles of its successes and methods in reciprocation for information kindly sent when their organization was in its incipiency.

The committee on constitution sent to all the States in the Union having reading-circles, then numbering thirteen, and received much information which greatly aided them in formulating their report. The result was an organization differing materially in some essential points, and yet containing good ideas from many States. The features that have contributed to its success are the following:—

I. *The Board of Control.* — The election of this board was peculiarly fortunate. It consists of four officers, the State superintendent being president, and one director from each congressional district, thus affording complete representation. The work of the board is intrusted to the following committees: 1. Finance, 2. Course of Reading and Books, 3. Circulars and Printing, 4. Certificates and Diplomas, 5. Local Management. A great part of the success of the circle is due to the last-named committee. Its duties are to supervise the work throughout the State, appoint local managers, instruct them in the work, encourage the formation of local circles and the enrolment of members, hold meetings of managers and members, send speakers to county associations and institutes, and keep up the interest and enthusiasm in the State. Another very important part of the work of this committee, which has contributed very much to the success, is the intimate communication with the local managers in cities and counties, which is carried on by the secretary, Mr. B. C. Gregory of Newark, who has done more work than all the other members of the Board of Control put together. He is an indefatigable worker, an accurate statistician, a skilful organizer and administrator, and an enthusiast on reading-circles, being a Chautauquan, and the secretary also of the Chautauqua Teachers' Reading-Union. This tribute is due to Mr. Gregory, because the New Jersey circle could not have attained such success without him.

The committee on local management divided the State into districts, to be supervised by the members of the board. By this means the work was easily pushed and encouraged. Where the best results have been attained, much credit is due to the county superintendents who have co-operated with the committee in spreading information and encouraging the local circles. Where work has been done, it was well done. Unfortunately there are a very few counties where the county superintendents are dead educationally, and the committee have not had time yet to push their work.

Another very important work of this committee has been the district meetings. Soon after the circle was organized, meetings of city and county managers were held in four central places for the purpose of giving instruction and for conference. During the last spring another series of meetings was held in six central places, when all members and friends of education were invited. At each meeting an address was given by some distinguished educator, in addition to the addresses of the chairman and secretary and the reports of local managers. These meetings resulted in much good in unifying the work and cementing the bond of common interest.

The duties of the other committees are essential, but do not come into relation with the organization.

II. *The County and City Boards of Managers.* — The duties and responsibilities of the local managers, city and county, are very important, and the success of the work depends very much upon them; in fact, no success can be looked for except through them. They must enrol members, encourage meetings, and keep the work moving. They must arrange programmes, direct the method of reading, and keep up the enthusiasm.

III. *The Local Circles.* — Experience shows that the work cannot be successfully carried on without meetings and local circles. It is impossible for the majority of teachers to pursue a course of reading alone. They need the inspiration of numbers, a proper comprehension of the matter; and the fullest appreciation of it depends upon discussion, analysis, and amplification. The cities and counties that show the best results have maintained regular meetings.

IV. *The Course of Reading.* — In making the courses of reading, the Board of Control, appreciating the needs of the teachers, provided professional works, embracing the history, principles, and methods of teaching, and reading of a general character, including history and literature. The books are arranged in groups, which enables members to select a purely professional course or one partly professional; but no selection can be made by the omission of a single educational work.

The object of the reading-circle is to induce teachers to continue systematic study in these lines, and it has put into their hands some of the best educational literature available. The course is attractive, entertaining, and inspiring.

The second year's course is now being read, and the third year's course has been arranged. Both provide for professional and general reading. The popularity of the course, and the success of the work, may be seen by the fact, that, out of about 3,250 teachers in the public schools of the State, the secretary reports 1,980 members of the reading-circle. The State superintendent says that its influence is being felt in the remotest districts, and that it has created a greater interest in education than has ever before been known in the State.

C. E. MELENEY.

EXPLORATION AND TRAVEL.

Prejevalsky's Journeys in Central Asia.

UP to the last few years, our knowledge of Central Asia was extremely deficient. Though in the middle ages many travellers crossed the arid highlands of Mongolia and Tibet, among them the famous Marco Polo, though numerous reports on the routes followed by the Chinese silk-caravans exist, the geography of that region was actually unknown. It is only of late years that scientific travellers succeeded in entering Central Asia; and among them Prejevalsky, the Russian general, is most prominent from the extent of his journeys and the valuable results of his expeditions. His most important discovery is that of the mountain-range connecting the Nan Shan system with the western Kwen Luen, which feeds the Khotan and Yarkand Rivers. He proved that the Kwen Luen

forms one enormous system stretching from the Pamir Plateau to western China. Its most northern range is formed by the Taguz Daban, the Altin Tagh, and Nan Shan. It was on his second journey, in 1876, that Prejevalsky explored this region. He advanced from Kulja on the Ili, which he describes as the most lovely district of Central Asia, crossed the Tian Shan, and descended to the oasis of Karashar, on the Bagrash Kul. Here he turned south, and, after having reached the Tarim, followed it until he reached the famous Lob Nor (Lake Lob). He stated the remarkable fact that the western part of this lake, which has no outlet, contains fresh water, — a fact which he verified on his fourth expedition. He concluded that Lob Nor is a reedy lake of no great depth, surrounded by flat shores, the haunt of prodigious numbers of water-fowl, and inhabited by a few hundred human beings, whose habits, tenements, and mode of life, resemble those of the primitive lake-dwellers. The eastern part of the lake must be salt, as it is an inland lake, and all the matter contained and dissolved in the waters of the Tarim is carried into it.

His most important discovery here was that a high chain of mountains, the Altin Tagh, rises almost precipitously from the southern shore of the lake to the limit of perpetual snow. On his fourth expedition he completed these discoveries by that of the high chains of mountains forming the western and southern boundaries of Tsaidam.

He had explored this saline marshy district on his first journey, 1871–73, and thence had visited northern Tibet, with the intention of visiting Lhasa; but when about five hundred miles from this place he was compelled to turn back.

The same region was the goal of his third expedition. Well supplied with funds, he started from Zaisan, in the government of Semipalatinsk. His party numbered thirteen all told, ten being Cossacks. They travelled along the south shore of Lake Urungu, and ascended the Ulyungur. The natives of this river and its chief tributary, the Bolgun, are Targute-Kalmuks, whose kinsmen, inhabiting north-western Dzungaria, are the descendants of those Kalmuks, who, driven out of their camping-grounds by the Dzungars, migrated to the banks of the Volga and Ural, and in 1770 suddenly departed, to the number of four hundred and sixty thousand families, and at last settled on the Ili.

Prejevalsky crossed from the Ulyungur to the eastern continuation of the Tian Shan, and, passing the plain of Barkul, he at last arrived at the oasis of Hami, which he describes as remarkably productive. Corn, vegetables, grapes, and melons are grown there, the last being of such exceptionally fine flavor as to be considered worthy of being sent to the Court of Peking. It is a place of the highest importance, as it commands the chief roads from China to eastern Turkestan and Dzungaria. From here, roads lead to the cities situated along the northern foot of the Tian Shan, and across the desert of Gobi to Sha-chau, on the upper Bulunzir. This oasis is situated at the foot of the Nan Shan, which is here a chain of mountains only twenty-seven miles in width; though farther east, near the Koko Nor, it attains far greater dimensions. Still farther east, in the province of Kansu, the mountains are covered with dense forests; but near Sha-chau it is a sterile, treeless range. Yet the highest parts possess a savage grandeur, with their summits towering above the main axis, their precipices, snow-covered peaks, and glaciers.

The expedition now entered the plateau of Tsaidam, — an expanse of salt marsh and clay flats dotted with lakes, and elevated about ten thousand feet above the sea. The level and desolate character of this country is shown in Fig. 2, which is reproduced from *Le Tour du Monde*.

Another characteristic feature of this region is shown in Fig. 1, which has been taken from the same journal. Around the shrubs and bushes masses of sand and dust are accumulated by the wind, and thus in course of time a small hill is formed, on the top of which a new shrub begins to grow. Von Richthofen's researches show that the masses deposited by the wind are distributed over a wide area in Central and Western Asia, and that the form of the surface of this region is principally due to the action of the wind.

Tsaidam forms the first terrace of the plateau of Tibet. On its northern and southern sides it is enclosed by the branches of the Kwen Luen, while the spurs of the Nan Shan form its eastern limit. The southern part, which was formerly covered by an extensive salt lake, is extremely level, while the northern section is higher and hilly, and is composed of a barren, sandy ground and saline marshes. The inhabitants of this region are Mongols. Their principal occupation is stock-raising. In summer the herds are driven to the mountains, as the lower parts of the country swarm with insects. On account of the great distance of the agricultural districts of China, and the difficulty of obtaining grain, the inhabitants till the soil to a limited extent. As they are frequently attacked by the Chara Tanguts and the Golyks of the river Mur-usu, they fortify certain parts of their camps and villages, in which they defend themselves from their enemies, whose predatory excursions are said to be permitted and supported by the Chinese governor.

Though the inhabitants of Tsaidam received Prejevalsky well, the native princes, acting doubtless by orders from Peking, refused him both guides and provisions; but at length he succeeded in starting on his way south. After they had passed the Shuga and Baian-kara-ula Mountains, the difficulties of travelling increased greatly. Their guide, who had only once, fifteen years before Prejevalsky's journey, traversed that country on his way to Lhasa, did not

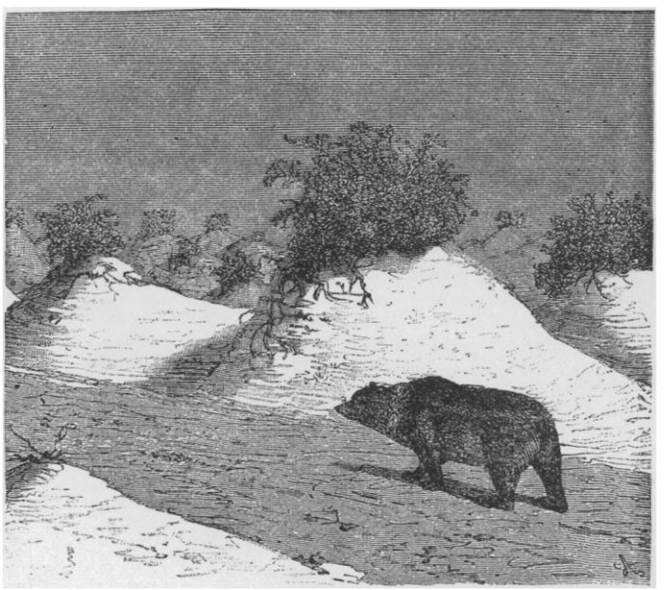

FIG. 1. — SAND-HILLS.

know the way, and the caravan had to select the way according to their own judgment. They succeeded in reaching the Napchitai-ulan-muren, where they found traces of caravan camps, which assured them that they were on the right road. Though it was only the middle of October, the weather turned cold, with continued snowfalls, and their camels and horses could find nothing to eat. Thus, under great difficulties, they succeeded in crossing the Kokoshili and Dumbure Mountains. Having reached the valley of the Mur-usu, they struck the track taken by the Lhasa pilgrims, and ascended the river. But soon the track was lost again; and, after having deposited part of the load in a *cache*, the caravan proceeded southward, and crossed the Tangla Range by a pass which, though 16,700 feet in height, is only 2,100 feet above the valley of the Mur-usu, and has a very gradual slope to the north and south. The eastern continuation of this mountain-range is probably the watershed between the Yang-tse-Kiang and the rivers of Farther India; but we are far from having a sufficient knowledge of the complicated river-systems of this region. It is even still doubtful whether the Nap Chu is the upper course of the Salwen as represented on our map, or of the Irawadi, as some authorities on the geography of Farther India suppose. Prejevalsky now reached the valley of the San Chu; but here his further progress was stopped, as the Dalai-Lama did not permit him to enter his territories. So he was compelled to return, though only one hundred and fifty miles from Lhasa, the goal of his journey.

The results of this journey are confirmed and supplemented by the observations of the Pundit A-K, who visited Lhasa, and, continuing his journey farther north, reached Tsaidam.

In 1884 and 1885 Prejevalsky accomplished his fourth journey in Tibet. From Kiachta he went to the Chinese city of Sining, east of the Koko Nor. Having arrived in eastern Tsaidam, he left all his superfluous baggage under the charge of seven Cossacks, while he and his companions, a party of fourteen, started to explore the sources of the Hoang-Ho, which is situated in a plateau from 14,000 to 15,000 feet in height. Travelling south, Prejevalsky crossed the divide between the Hoang-Ho and Di Chu, the source of the Yang-tse-Kiang, at a height of 14,500 feet, and, on entering the basin of the Di Chu, came to a country alpine in its character, but without forests, possessing, however, a rich and varied herbaceous flora. From here he returned to Tsaidam, and, turning west, made the important discovery of the 'Valley of the Winds,' which gradually rises to an easy pass across the Taguz Daban Mountains, leading to Cherchen. This pass, and the route from Sha-chau along the foot of the Altin Tagh, were the caravan routes used in former times in the trade between Turkestan and China. From here he paid

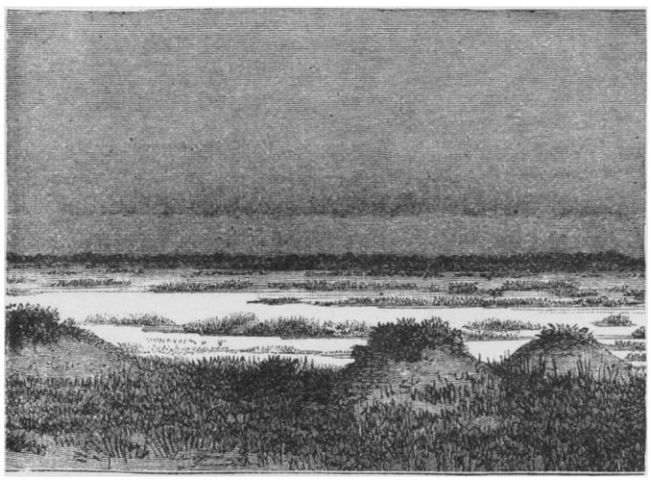

Fig. 2. — Salt Marshes in Tsaidam.

another visit to the Lob Nor, and then returned to Russia by way of Cherchen, Kiria, and Khotan.

Our map shows the important results of these journeys; but besides this, other recent researches have been made use of in constructing the map. The sources of the Irawadi and the adjoining parts show Colonel Woodthorpe's explorations. The north-western part is from the Indian Trigonometrical Survey map of Turkestan, but corrected according to the recent Russian surveys on the Pamir and the adjoining regions, and to the surveys of the Afghanistan Boundary Commission, as far as they have been published.

HEALTH MATTERS.

Health in Schools.

The Medical Society of the State of New York voted at its annual meeting to distribute fifteen hundred copies of the essay of Dr. A. N. Bell, on the physiological condition and sanitary requirements of school-life and school-houses, which received the Merritt H. Cash prize at the annual meeting held in February. These additional copies are intended for the school-officers of the State, and if read, and the advice therein given is put into practice, much good will result. The essayist opens by calling attention to the plasticity of every living organism during the early period of its existence, and to the liability of causing constitutional weakness, or even a diseased state, if a young person of originally healthy constitution be subjected for a considerable period to such injurious physical conditions as tend to produce a modification of type. All the phenomena of maintaining a living existence are accomplished by the process of nutrition. The parts played by respiration and the blood in this process receive due attention from the essayist; and the nervous system, including the brain, is concisely described, both as to structure and function.

In speaking of the age at which children should be sent to school, Dr. Bell says children differ greatly in their powers of resistance to injurious influences, as do adults, though incomparably more susceptible to them: hence to fix upon the age at which school-life may be commenced involves the consideration of the kind of school-life as well as the adaptation of the child. The first and central fact to be constantly kept in view in conducting school-life is the plastic property of the child's mind. This fact being always uppermost, healthy children, at the age of about seven years, may safely begin to learn the alphabet, spelling, and figures, on the kindergarten system, giving them not more than two or three hours' application daily, with not less than half of the time, at equal intervals, for play; provided, always, the sanitary conditions of the school-room are duly regarded. At the age of about ten years, systematic education may be commenced; but up to the age of puberty, the school-time should not be more than six hours daily; and no child should be required to devote more than half of the time of school-hours to study, or more than forty minutes at a time to close application; and no recitation or blackboard exercise, which imposes the greatest exertion of the mind, should be longer than fifteen minutes. The education of the senses, and the best kinds of gymnastics for school, are considered quite at length.

There is one point upon which Dr. Bell lays great stress, and we are gratified that he does so; that is, the punishment of a refractory pupil by his detention from play, or keeping him in after school-hours. He says that teachers and others who favor the keeping-in system must be very superficial observers of children, not to have learned that to deprive a child of play is an exceedingly poignant punishment, — one that afflicts and grieves his mind not only, but frequently stirs up his worst passions. Besides, keeping-in is frequently coupled with an extra task, or 'till the lesson is got.' Surely, nothing could be better calculated to create a repugnance to study, and stimulate obstinacy. Moreover, it sometimes involves the loss of a meal, or, at least, a postponement of meal-time, to the derangement of digestion and injury of health. In every attitude of the case the system of keeping-in as a punishment is bad; worse, even than corporal punishment, and, like it, should never be practised except in extreme cases.

In the portion of the essay devoted to the school-house itself, the site first claims attention. In dealing with this subject, the essayist says that the ground air is liable to be impregnated with emanations from all decomposing material; and instances are by no means lacking to show that schools exposed to such dangers have frequently incurred severe epidemics of whooping-cough, measles, scarlet-fever, diphtheria, and typhoid-fever, and are constantly liable to pneumonia, catarrhal and diarrhœal diseases. In speaking of the materials which should be selected to be used in building school-houses, Dr. Bell refers to the examination of various kinds of stone which was made with reference to the choice of building-stone for the British House of Parliament in 1839. It was then found that the absorption of water for one hundred volumes of rock was in the following proportions: in three specimens of siliceous limestones, 5.3, 8.5, and 10.9; three of nearly pure limestones from oolite, 18.0, 20.6, and 31.0. In all the experiments the air was removed by first placing the specimens in water under the vacuum of an air-pump. Brick, under the same process, will absorb from ten to thirty volumes of water. The ventilation, warming, and sewerage of school-houses are concisely and intelligently discussed.

In speaking of the sanitary surveillance which is so essential in every school-system, Dr. Bell's testimony is of great value. His experience as a member of the Board of Education in Brooklyn entitles him to speak *ex cathedrâ*. He says, that, constituted as our boards of education are, with few exceptions, though there may be some members who are physicians, it is impracticable to secure competent sanitary supervision under the direction of or subordinate to them. They are generally divided into committees with special charges, — on sites, construction, heating, ventilation, health, etc.; and on school-houses, with the special surveillance of particular schools, severally, to the different committees. All such committees are exceedingly jealous of their rights, and resist the interference of their fellows: hence even inquiries are commonly met